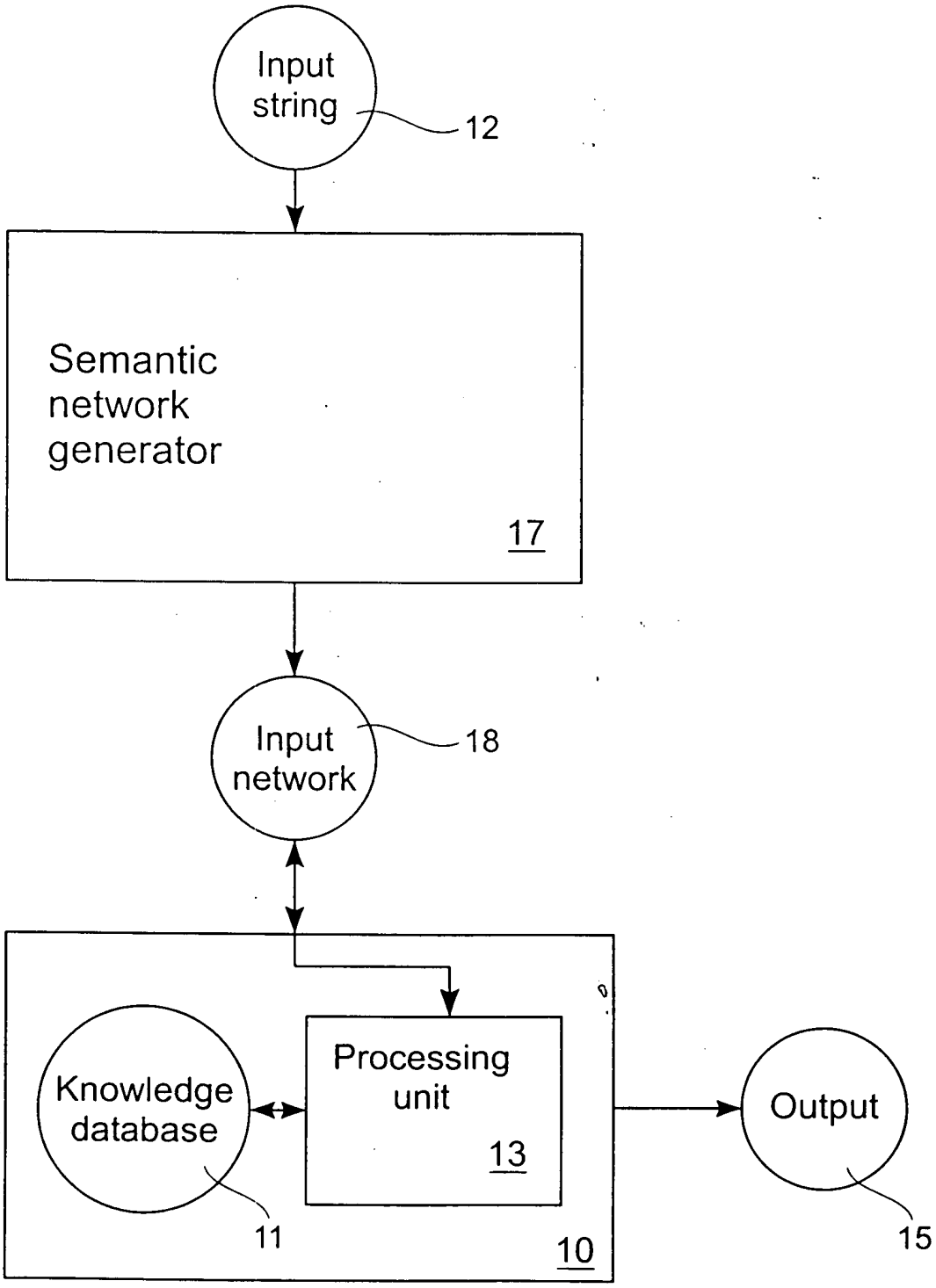
Input string
12
Semantic network generator
17
Input network
18
Knowledge database
11
Processing unit
13
10
Output
15

Fig. 1A

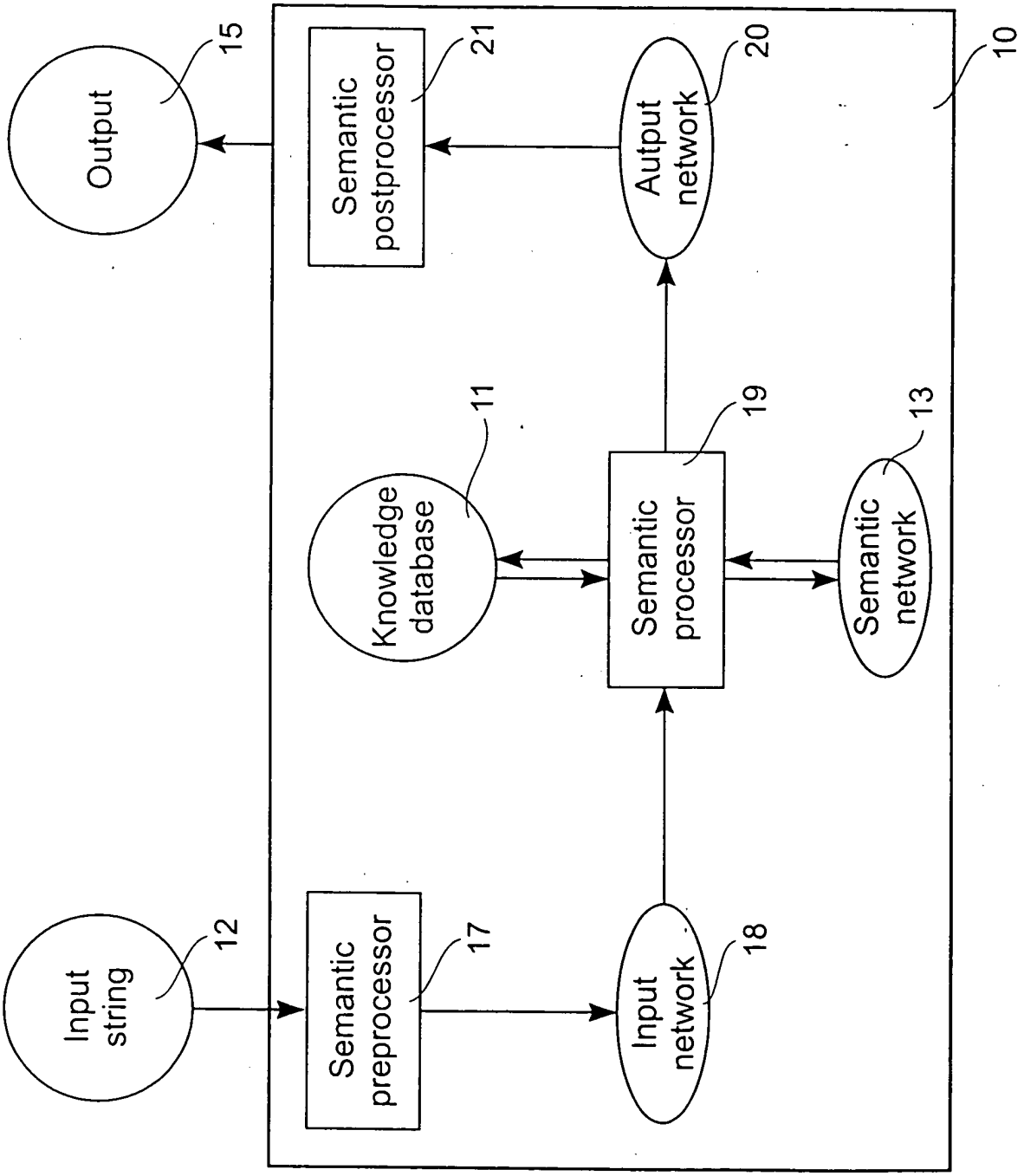
Output
15
Semantic postprocessor
21
Autput network
20
10
Knowledge database
11
Semantic processor
19
Semantic network
13
Input string
12
Semantic preprocessor
17
Input network
18

Fig. 1B

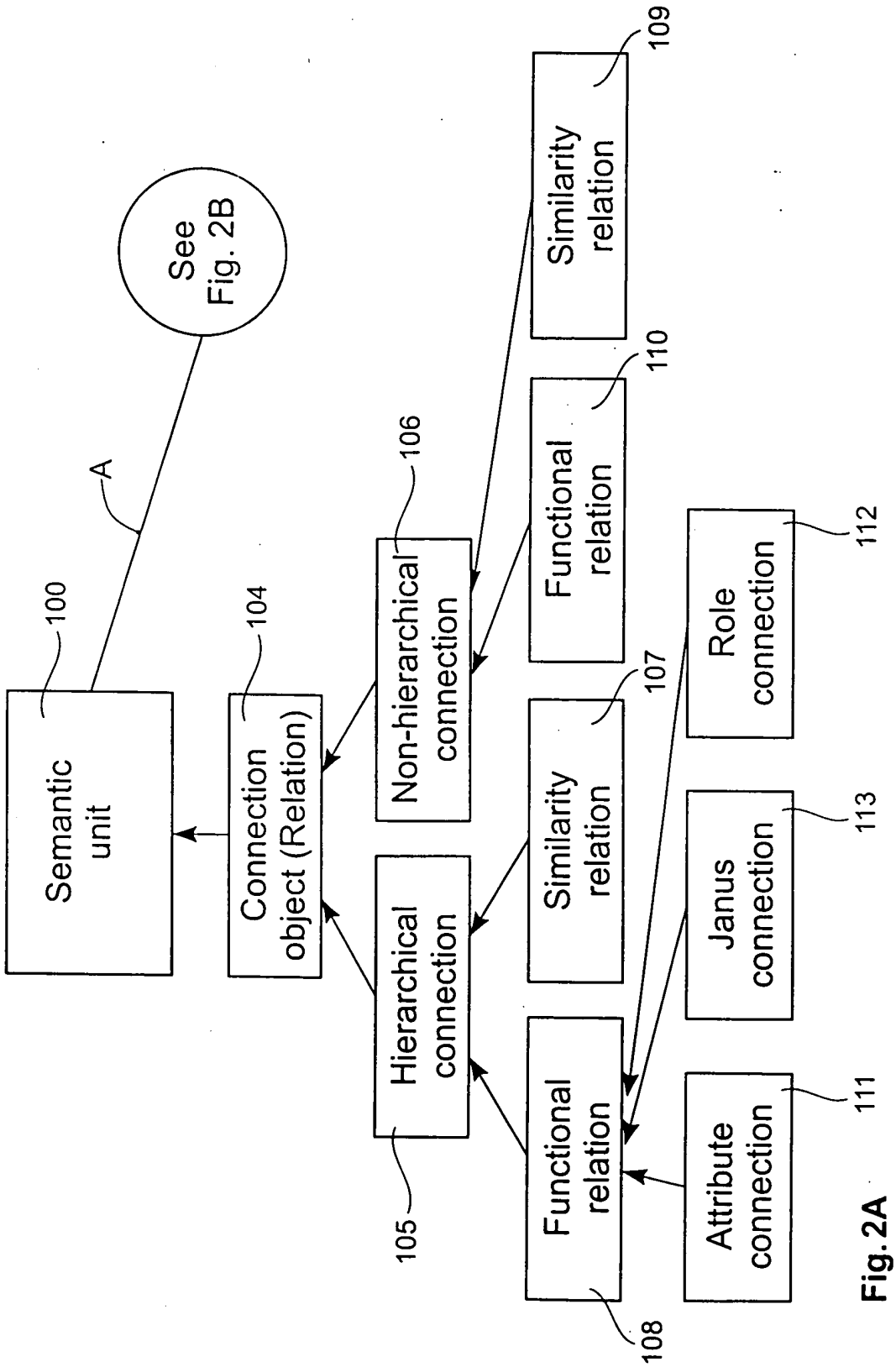
See Fig. 2B
A
Semantic unit
100
Connection object (Relation)
104
Hierarchical connection
105
Non-hierarchical connection
106
Similarity relation
107
Functional relation
108
Similarity relation
109
Functional relation
110
Attribute connection
111
Role connection
112
Janus connection
113

Fig. 2A

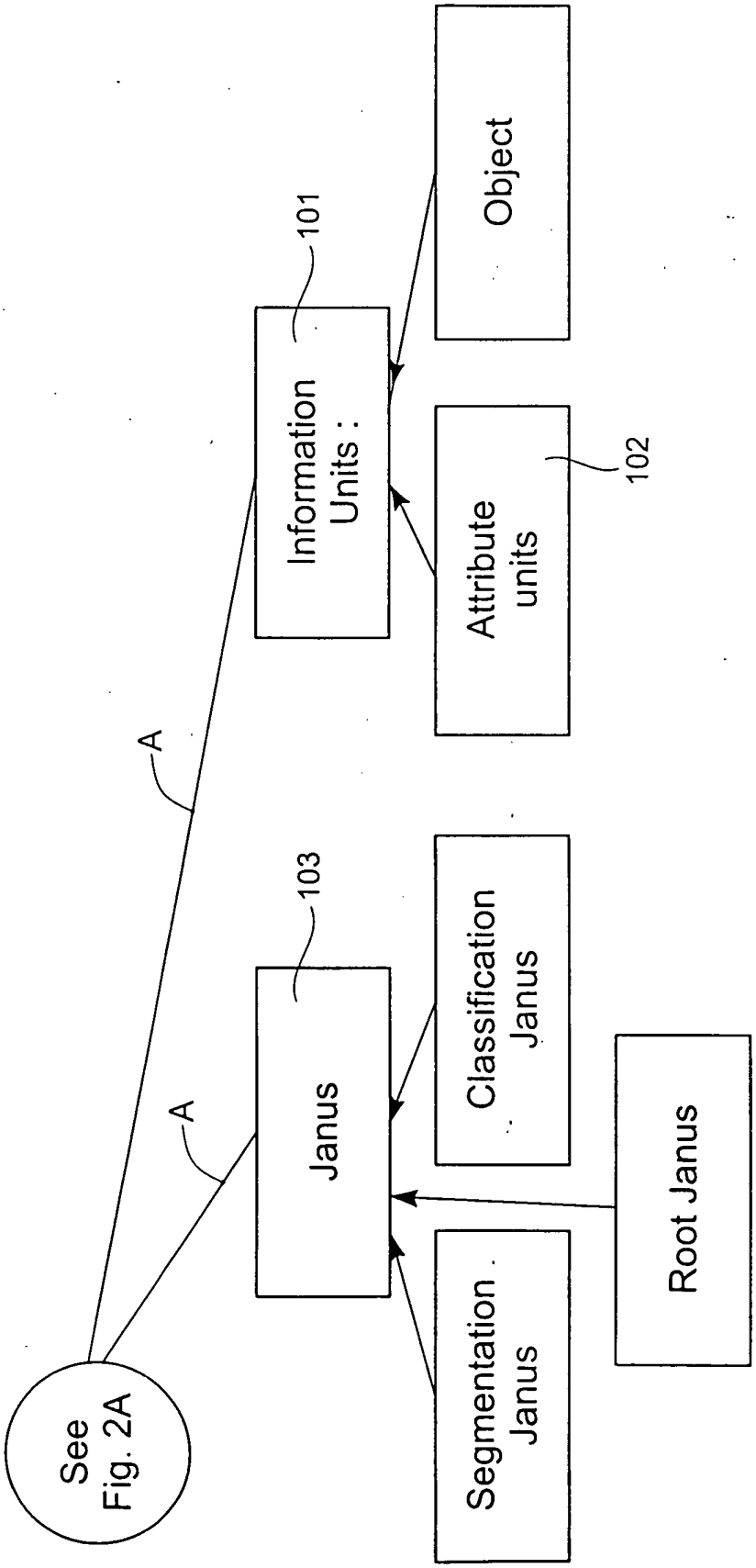
See Fig. 2A
A
A
Information Units :
101
Object
Attribute units
102
Janus
103
Classification Janus
Segmentation Janus
Root Janus

Fig. 2B

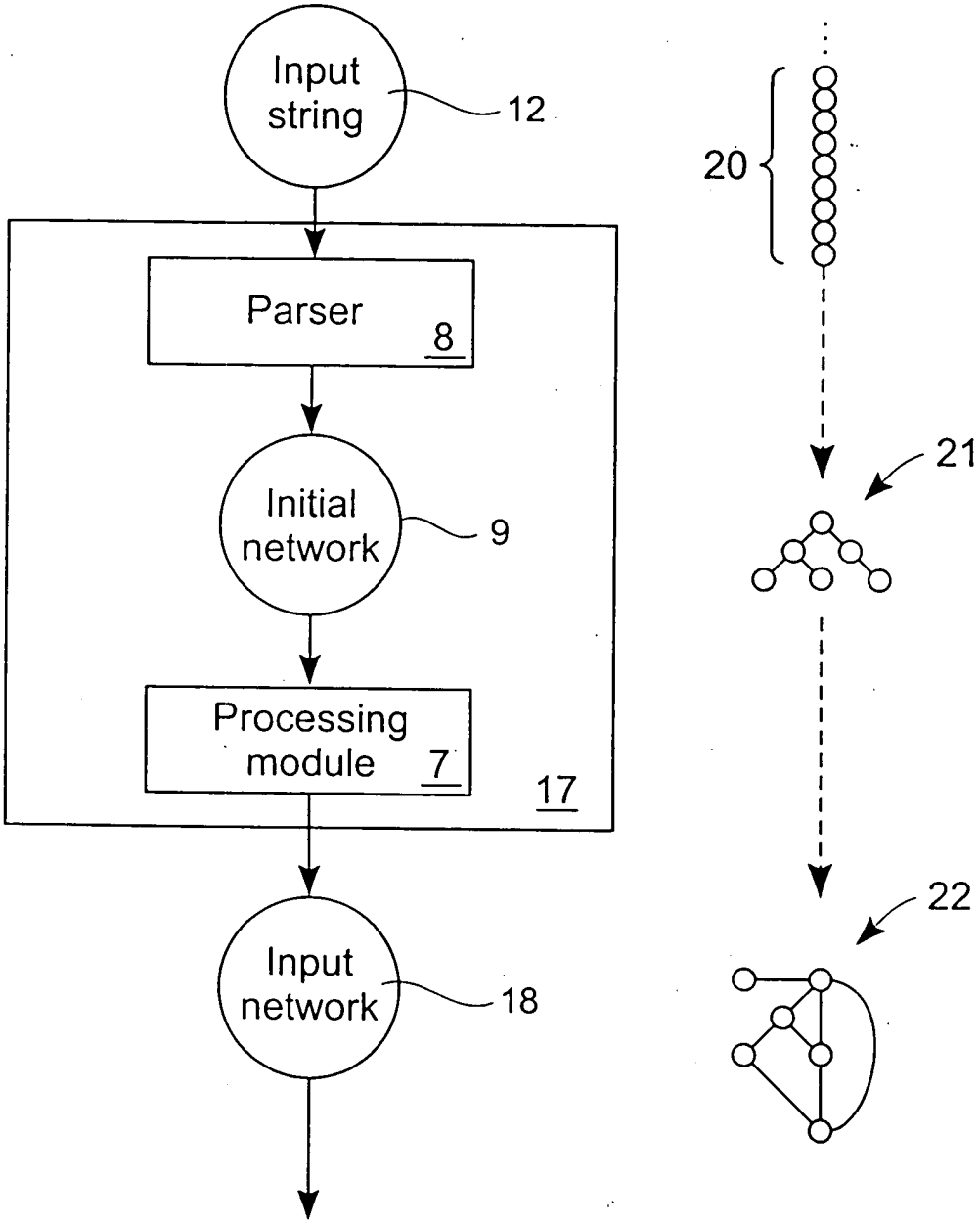
Input string
12
Parser
8
Initial network
9
Processing module
7
17
Input network
18
20
21
22

Fig. 3

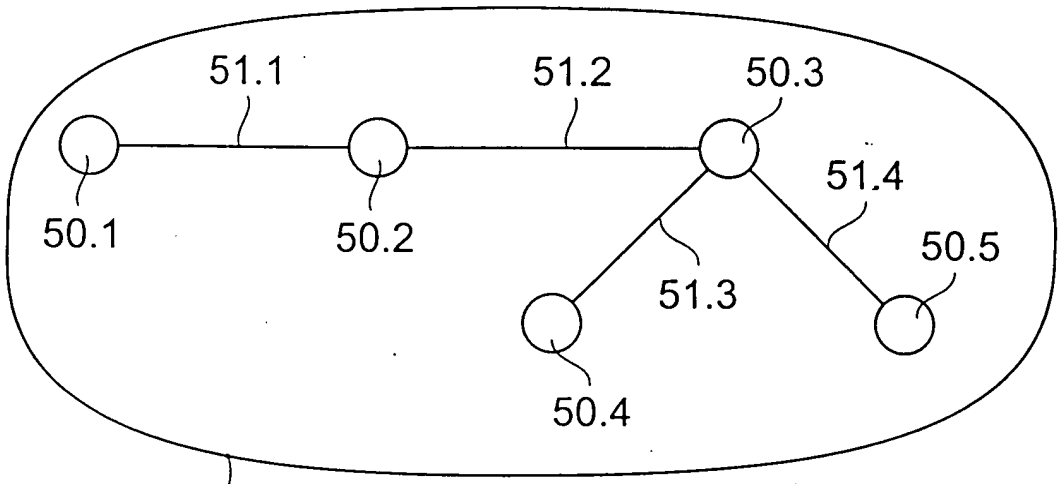
51.1
51.2
50.3
51.4
50.1
50.2
50.5
51.3
50.4
18

Fig. 4

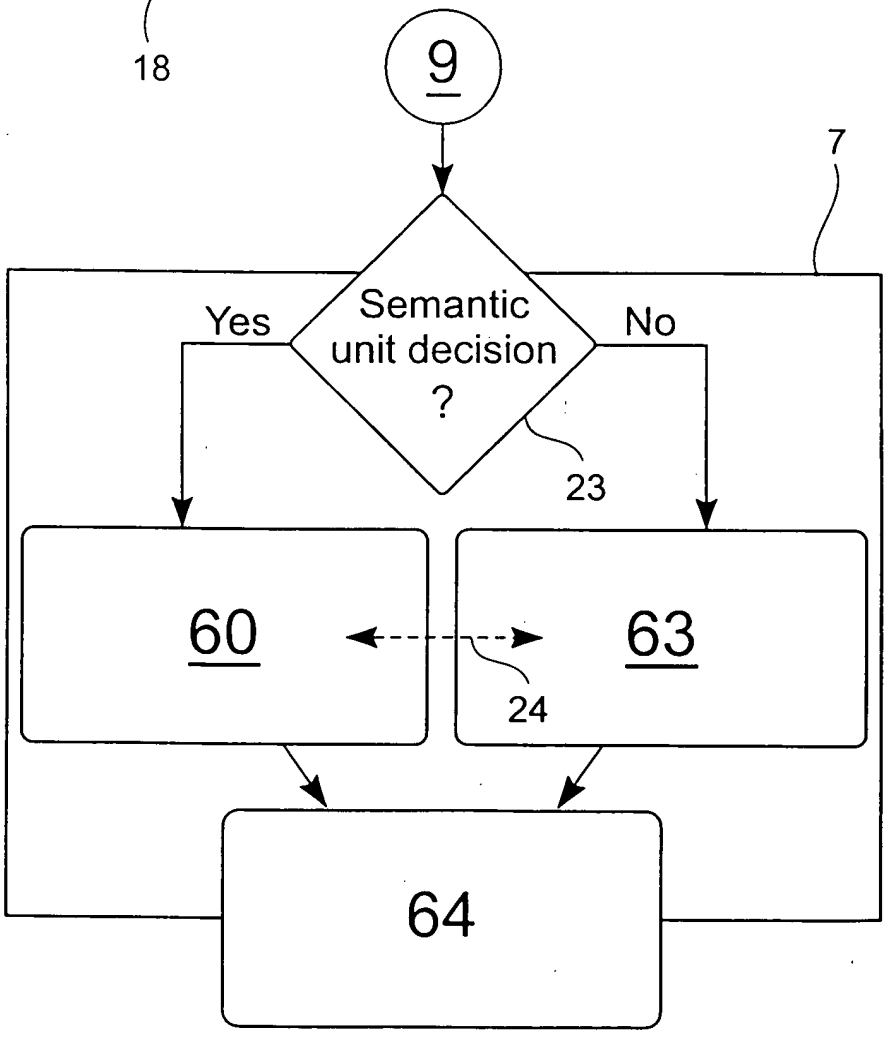
9
7
Yes
Semantic unit decision ?
No
23
60
63
24
64

Fig. 7

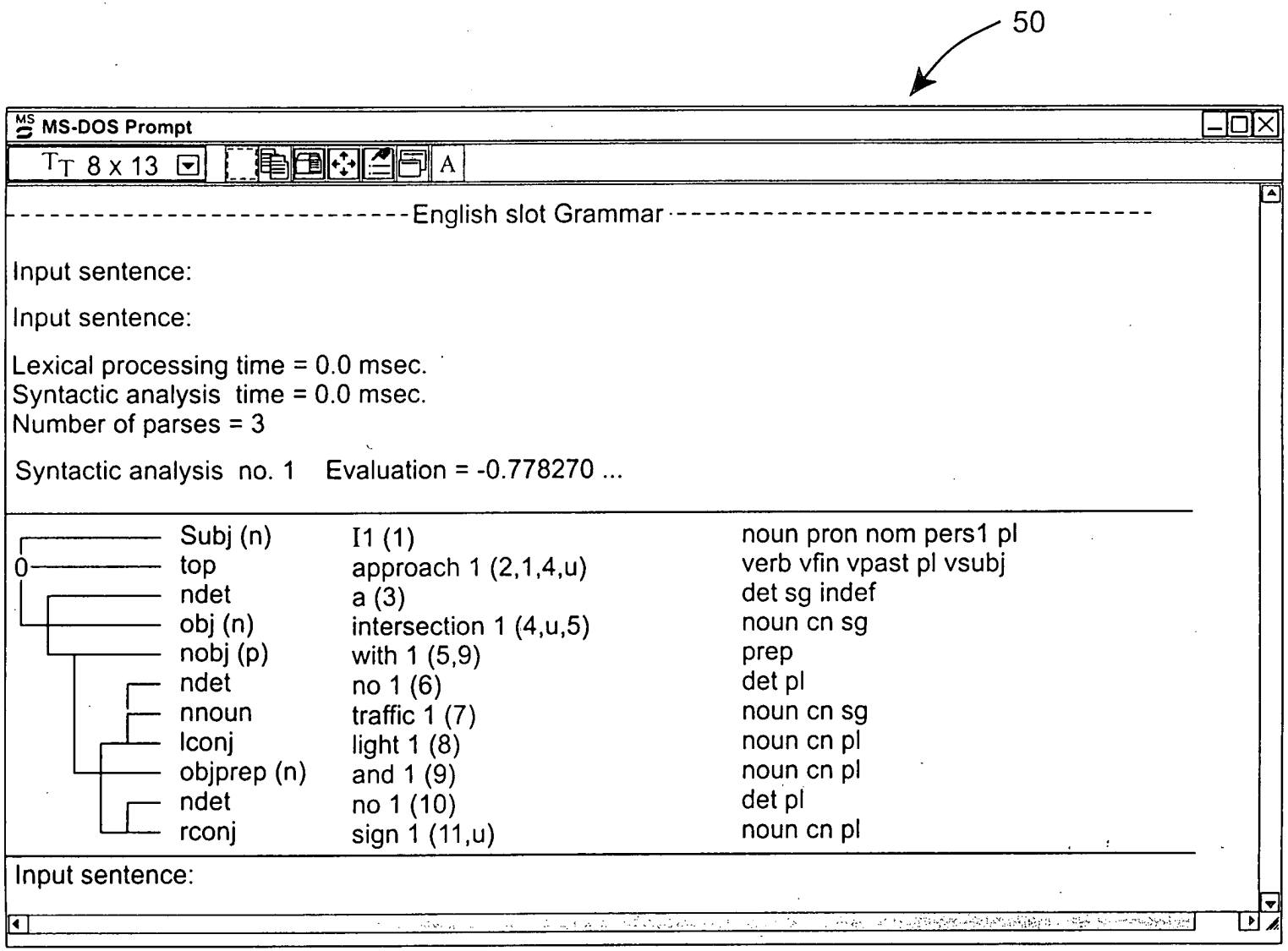
50
MS-DOS Prompt
8 x 13
English slot Grammar
Input sentence:
Input sentence:
Lexical processing time = 0.0 msec.
Syntactic analysis time = 0.0 msec.
Number of parses = 3
Syntactic analysis no. 1 Evaluation = -0.778270 ...
0
Subj (n) I1 (1) noun pron nom pers1 pl
top approach 1 (2,1,4,u) verb vfin vpast pl vsubj
ndet a (3) det sg indef
obj (n) intersection 1 (4,u,5) noun cn sg
nobj (p) with 1 (5,9) prep
ndet no 1 (6) det pl
nnoun traffic 1 (7) noun cn sg
lconj light 1 (8) noun cn pl
objprep (n) and 1 (9) noun cn pl
ndet no 1 (10) det pl
rconj sign 1 (11,u) noun cn pl
Input sentence:
51
52
53
54

Fig. 5A

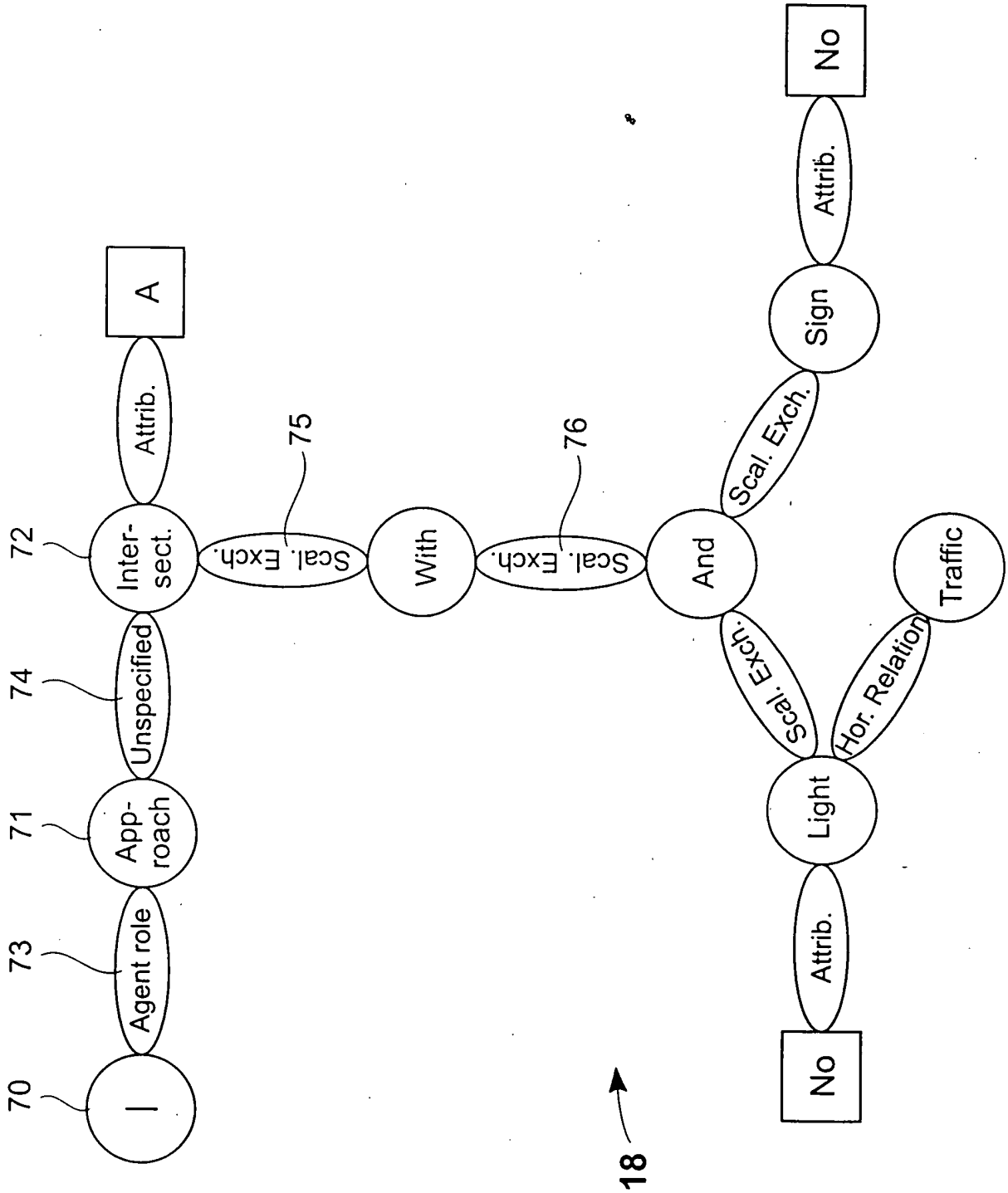
I
Agent role
App-roach
Unspecified
Inter-sect.
Attrib.
A
Scal. Exch.
With
Scal. Exch.
And
Scal. Exch.
Sign
Attrib.
No
Scal. Exch.
Light
Attrib.
No
Hor. Relation
Traffic
70
73
71
74
72
75
76
18

Fig.5B

SEMANTIC UNIT DECISIONS:

60

0-element of the Syntax Type String = 'NOUN' --➤ object 'INFORMATION'
0-element of the Syntax Type String = 'VERB' ⟶ object 'INFORMATION'
0-element of the Syntax Type String = 'SUBCONJ' --➤ object 'INFORMATION'
0-element of the Syntax Type String = 'PREP' --➤ object 'INFORMATION'
0-element of the Syntax Type String = 'DET' --➤ object 'ATTRIBUTE'
0-element of the Syntax Type String = 'ADV' --➤ object 'ATTRIBUTE'
0-element of the Syntax Type String = 'ADJ' --➤ object 'ATTRIBUTE'
0-element of the Syntax Type String = 'INFTO' --➤ object 'ATTRIBUTE'
0-element of the Syntax Type String = 'QUAL' --➤ object 'Information

61 62

CONNECTION DECISIONS:

63

1) SyntaxTypeString (element 0) = VERB
Slot (element 0) = the other word's position
OtherSyntaxType String (element 0)= NOUN

⟶ Create agentrole connection (typ 0)

2) SyntaxTypeString (element 0) = VERB
Slot (element 1) = the other word's position
OtherSyntaxTypeString (element 0) = NOUN
No passive form
No gerund form

⟶ Create objectrole connection (type 1)

3) other words entry type is 2

⟶ Create attribute connection

4) SyntaxTypeString (element 0)= NOUN
OtherWord = WITH

⟶ Create scaling exchange connection

5) OtherSemanticalTypeString = NNOUN

Fig. 6A

SyntaxTypeString (element 0) = NOUN

→ Create HorizontalRelation

6) word = WHILE
otherSyntaxTypeString (element 0) = VERB

→ Create horizontal relation (type 12)

7) otherWord = WHILE
syntaxTypeString (element 0) =VERB

→ Create horizontal relation (type 12)

63 {

8) syntaxTypeString (element 0) = VERB
otherSyntaxTypeString (element 0) = VERB
Gerund form

→ Create agent role connection (type 0)

9) SyntaxTypeString (element 0)=VERB
Slot (element 2) = the other word's position
OtherSyntaxTypeString (element 0) = NOUN
No passive form

→ Create beneficiary role connection (type 7) (indirect object)

}

Fig. 6B